

Claims

What is claimed is:

1. A process for recovering a metal value from a metal-bearing material comprising the steps of:
  - a. subjecting a metal-bearing material to a reactive process to liberate at least one metal value from said metal-bearing material;
  - b. incorporating at least one seeding agent into said reactive process, said seeding agent at least partially preventing said reactive process from passivating or encapsulating said at least one metal value by urging at least one passivating or encapsulating species to at least partially crystallize, precipitate or otherwise form on or in proximity to said seeding agent;
  - c. obtaining a product from said reactive process, wherein at least one metal value is present in said product; and
  - d. extracting said at least one metal value from said product.
2. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said at least one seeding agent comprises hematite.
3. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said seeding agent comprises at least a portion of a residue from said reactive process.
4. A process for recovering a metal value from a metal-bearing material according to claim 1, further comprising the step of recovering metals which are present in said residue from said reactive process before using said residue as said seeding agent.
5. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said seeding agent is not a by-product of said reactive process.

6. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said metal value is selected from the group consisting of copper, gold, silver, nickel, cobalt, molybdenum, zinc, rhenium, uranium, rare earth metals, and platinum group metals.

7. A process for recovering a metal value from a metal-bearing material according to claim 3, wherein said metal present in said residue is selected from the group consisting of copper, gold, silver, nickel, cobalt, molybdenum, zinc, rhenium, uranium, rare earth metals, and platinum group metals.

8. A process for recovering a metal value from a metal-bearing material according to claim 1, further comprising the step of extracting said metal value from said product of said reactive process using electrowinning.

9. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said reactive process comprises pressure leaching.

10. A process for recovering a metal value from a metal-bearing material according to claim 9, wherein said reactive process comprises pressure leaching at a temperature of about 170°C to about 235°C.

11. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said step of subjecting a metal-bearing material to a reactive process produces acid, and further comprising the step of utilizing at least a portion of the acid produced by said reactive process in a heap leaching operation or an agitated leaching operation.

12. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said step of extracting at least one metal value from said product comprises extracting at least one precious metal from said product.

13. A process for recovering a metal value from a metal-bearing material according to claim 1, wherein said step of extracting at least one metal value from said product comprises extracting gold from said product.

14. A process for recovering a metal value from a metal-bearing material comprising the steps of:

- a. subjecting a metal-bearing material to a reactive process to liberate at least one metal value from said metal-bearing material;
- b. incorporating hematite as at least one seeding agent into said reactive process;
- c. obtaining a product from said reactive process, wherein at least one metal value is present in said product; and
- d. extracting said at least one metal value from said product.

15. A process for recovering a metal value from a metal-bearing material according to claim 14, wherein said metal value is selected from the group consisting of copper, gold, silver, nickel, cobalt, molybdenum, zinc, rhenium, uranium, rare earth metals, and platinum group metals.

16. A process for recovering a metal value from a metal-bearing material according to claim 14, further comprising the step of extracting said metal value from said product of said reactive process using electrowinning.

17. A process for recovering a metal value from a metal-bearing material according to claim 14, wherein said reactive process comprises pressure leaching.

18. A process for recovering a metal value from a metal-bearing material according to claim 17, wherein said reactive process comprises pressure leaching at a temperature of about 170°C to about 235°C.

19. A process for recovering a metal value from a metal-bearing material according to claim 14, wherein said step of subjecting a metal-bearing material to a reactive process produces acid, and further comprising the step of utilizing at least a portion of the acid produced by said reactive process in a heap leaching operation or an agitated leaching operation.

20. A process for recovering a metal value from a metal-bearing material according to claim 14, wherein said step of extracting at least one metal value from said product comprises extracting at least one precious metal from said product.

21. A process for recovering a metal value from a metal-bearing material according to claim 14, wherein said step of extracting at least one metal value from said product comprises extracting gold from said product.